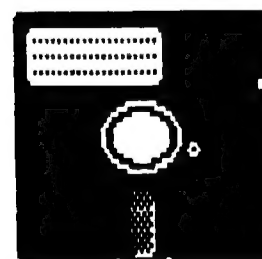
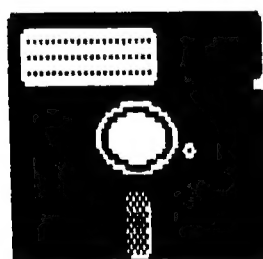


Commodore Amiga Align Operations and Instructions

A1000 - Version 1.0

A500 - Version 1.1

A2000 - Version 1.1



AMIGA ALIGN INTRODUCTION

The Drive Mechanisms installed in the Amiga 1000 Computer and 1010 External disk drives are manufactured by three (3) different vendors. However the Amiga 500 uses a fourth vendor. The Amiga Align Test has been verified on all drives.

When the Amiga-Align Kit, (P/N 314965-02), is received
it should contain one (1) each of the following....

- * P/N 314966-01 -- Amiga Align Program Disk (Version 1.0)
- * P/N 314966-02 -- Amiga Align Progeam Disk (Version 1.1)
- * P/N 314968-01 -- Amiga Digi-Log Calibration Disk
- * P/N 314967-02 -- Operations/Test Procedure Manual

If any item is missing contact the Commodore Parts Department Promptly.

```
*****
***
***  IMPORTANT NOTE --- IMPORTANT NOTE --- IMPORTANT NOTE ---IMPORTANT NOTE  ***
***
***  FOR PROPER OPERATION OF THE AMIGA-ALIGN THE FOLLOWING ARE NECESSARY      ***
***
***  1.  THE PROGRAM DISK MUST BE UN-WRITE PROTECTED (TAB CLOSED)             ***
***
***  2.  THE DIGI-LOG CALIBRATION DISK MUST BE WRITE PROTECTED (TAB OPEN)      ***
***
***  3.  A 256K RAM EXPANDER MUST BE INSTALLED (A1000)                       ***
***
*****

*****
**  PLEASE NOTE --- PLEASE NOTE --- PLEASE NOTE --- PLEASE NOTE --- PLEASE NOTE  **
**
**  THE AMIGA ALIGN PROGRAM DISK IS NOT COPY-PROTECTED AND BACKUP COPIES      **
**  SHOULD BE MADE BEFORE USING THE ORIGINAL FOR DRIVE ALIGNMENT              **
**
**  THE DIGI-LOG CALIBRATION DISKETTE IS A SPECIAL COMMODORE DISKETTE AND      **
**  CANNOT BE COPIED                                                            **
*****
```

AMIGA ALIGN OPERATION AND TEST PROCEDURES

SECTION ONE -- AMIGA ALIGN CHECK SETUP

1. Approximately 20 Seconds after power is applied to the system the KICKSTART PROMPT (A1000), or WORK BENCH PROMPT (A500/A2000) should be displayed.
2. At KICKSTART insert the Amiga Align Diskette into the Internal Drive.
3. At WORK BENCH insert the Amiga Align Diskette into the Internal Drive.
4. Approximately 40 Seconds later the Title Screen is displayed.
5. Approximately 20 Seconds later the Amiga Align Start Screen is displayed.

SECTION TWO -- AMIGA CHECK PROCEDURES

1. When any key is pressed at the Start Screen the Drive Number Option Screen is displayed.

NOTE: INTERNAL DRIVE - always select `0'
EXTERNAL DRIVE - always select `1'

2. After the Drive Number has been selected insert the Amiga Digi-Log diskette into the selected drive.
 - A. Press `RETURN' to start Amiga Align Check
 - ** When the Amiga Align Check is complete the Alignment Status of the drive under test is displayed as (UNIT PASSED OR UNIT FAILED)
 - (1) UNIT FAILED - Error During Test
Press `Y' to enter test mode
 - (2) UNIT PASSED - Alignment is OK
Press `Y' to enter test mode

SECTION THREE -- AMIGA ALIGN TEST MODE OPTIONS

(A) Alignment (W) Write Test (S) Speed Test
(R) Re-Check (C) Change (Q) Quit

RECOMMENDED TEST SEQUENCE

(1) Unit Failed

1. PRESS (S) CHECK SPEED

** SPEED `OK' - Press (Q) Quit
Power OFF System
Refer to Section Five

** SPEED `OFF' - Adjust Speed --- Refer to Section Four
Press (R) Re-Check

(2) UNIT PASSED

1. PRESS (S) CHECK SPEED

** Speed `OK' - drive is GOOD

AMIGA ALIGN OPERATION AND TEST PROCEDURES

SECTION THREE --- AMIGA ALIGN TEST MODE OPTIONS

TEST MODE OPTIONS

1. Press (A) Alignment Test - This option is used to align the drive if a failure occurs during the Alignment Check. -- Refer to Section Five
2. Press (W) Write Test - this option checks the format and Read/Write ability of the drive under test. Alignment and Speed should be verified before selecting this option.
 - A. Remove Amiga Digi-Log Diskette and insert a Blank Test Diskette.
NOTE: Blank Diskette MUST BE UN-WRITE-PROTECTED (Tab Closed)
 - B. Press `RETURN' to begin test.
 - ** The Write Test formats all 80 Cylinders of the diskette, then writes, reads and verifies selected test data.
 - ** If an error is encountered during the test a FAILED message is displayed.
 - ** If the drive PASSES the test.
Press any key to return to Test Mode Options.
3. Press (S) Speed Test - This option is used to check the Rotational Speed of The Drive Motor.
NOTE: Amiga Digi-Log Diskette must be inserted
 - ** If the Reading = 295-305 -- SPEED IS OK
 - ** If Adjustment is necessary -- Refer to Section Four
4. Press (R) Recheck - This option is used to retest the drive after all necessary adjustments are complete.
5. Press (C) Change Drive - This option is used to change the drive number to allow testing of the other system drive.
e.g.; If the Internal Drive was tested, selecting `1' will execute the test on the External Drive.
6. Press (Q) Quit - This option is used to terminate the Amiga Align Program.
NOTE: The system must be Re-Booted if this option is selected.

AMIGA ALIGN OPERATION AND TEST PROCEDURES

SECTION FOUR --- DRIVE MOTOR SPEED ADJUSTMENT

If the reading from the Speed Test is not within the allowed limits of 295-305, the motor speed must be adjusted. Although the procedure for this adjustment is the same for all drives, the location of the Motor Speed Control Pot will vary. The Internal Drive Mechanism can be identified once the Amiga Top Shield and RF Shield have been removed. The External Drive Mechanism can be identified once the top has been removed from the External Drive.

DRIVE VENDOR IDENTIFICATION

1. NEWTRONICS DRIVE ASSEMBLY - Label on back of the Drive Mechanism ...

```
*****
* D357                                     *
* MITSUMI ELEC. CO., LTD                 *
* MADE IN JAPAN                           *
*****
```

2. PANASONIC DRIVE ASSEMBLY - Label on the top of the drive Mounting Bracket..

```
*****
* MODEL JU-363-03                         *
* MATSUSHITA COMMUNICATION                *
* MADE IN JAPAN                           *
*****
```

3. NEC DRIVE ASSEMBLY - Label on the back of the Drive Mechanism..

```
*****
* FD1035                                  *
* NEC CORPORATION                         *
* MADE IN JAPAN                           *
*****
```

4. CHINON DRIVE ASSEMBLY - Label on the side of the drive Mechanism..

```
*****
* F-354E                                  *
* CHINON IND, INC.                        *
* MADE IN JAPAN                           *
*****
```

The Motor Speed is adjusted by turning the Motor Speed Control POT until the displayed speed reading is equal to (300). the location of the Motor Speed Control POTS are listed below.

- (A) NEWTRONICS - Top Right Hand Side of the Drive Mechanism behind the Plastic Plate. Accessed from the top of the Drive Assembly.
- (B) PANASONIC - Designated as (VR1) on the Drive PCB. Accessed from the bottom of the Drive Assembly.
- (C) NEC - Designated as (VR1) on the Drive PCB. Accessed from the bottom of the Drive Assembly.
- (D) CHINON - Designated as (VR1) on the Drive PCB. Accessed from the bottom of the Drive Assembly.

AMIGA ALIGN OPERATION AND TEST PROCEDURES

SECTION FIVE -- DRIVE ALIGNMENT

If the Amiga Align Check fails during testing it will be necessary to align the drive. Although the procedure for drive alignment is the same for all drives, the location of test points will vary. The Internal Drive Mechanism can be identified once the Amiga Top Shield and RF Shields have been removed. The External Drive Mechanism can be identified once the top cover has been removed.

DRIVE VENDOR IDENTIFICATION

1. NEWTRONICS DRIVE ASSEMBLY - Label on back of the Drive Mechanism ...

```
*****
* D357                                     *
* MITSUMI ELEC. CO., LTD.                *
* MADE IN JAPAN                           *
*****
```

2. PANASONIC DRIVE ASSEMBLY - Label on the top of the Drive Mounting Bracket.

```
*****
* MODEL JU-363-03                         *
* MATSUSHITA COMMUNICATION                 *
* MADE IN JAPAN                           *
*****
```

3. NEC DRIVE ASSEMBLY - Label on the back of the Drive Mechanism ..

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* MADE IN JAPAN                           *
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```

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* F-354E                                  *
* CHINON IND., INC.                       *
* MADE IN JAPAN                           *
*****
```

AMIGA ALIGN OPERATION AND TEST PROCEDURES

SECTION FIVE - DRIVE ALIGNMENT (continued)

1. Make sure the power is OFF.
2. Remove the cover and necessary shielding.
3. Remove the drive to be aligned from the system.
4. Remove the assembly from the mounting bracket (A1000).
5. Connect the Scope Probes as follows ...

NEWTRONICS - Locate the three (3) pin connector located on the Drive PCB.
(A1000) The Pins designated as, (N,P,G), are accessed from the bottom of the drive mechanism.

Connect the Scope Probes to the pins marked (N and P).

NOTE: See PCB Layout -- Page 8.

PANASONIC - Locate the double row of test points located on the Drive PCB.
(A1000/A500) The points designated as, (T1 and T2), are accessed from the bottom of the drive mechanism.
/A2000) Connect the Scope Probes to these points.

NOTE: See PCB Layout -- Page 8.

NOTE: It will be necessary to solder pins to these points to insure proper connection of the Scope Probes.

NEC - Locate the three (3) pin connector located on the Drive PCB.
(A1000) The connector, designated as, (TP1), is accessed from the top of the drive mechanism. Two (2) pins of this connector are designated as, (1 and 3), with the center pin unmarked.

Connect the Scope Probes to the center pin and pin 3.

NOTE: See PCB Layout -- Page 8.

CHINON - Locate the three pin connector located on the Drive PCB. The
(A500/A2000) connector, designated as, (TP1), is accessed from the bottom of the drive mechanism.

Connect the Scope Probes to the two outside pins.

NOTE: See PCB Layout -- Page 9.

6. Set both channels to the AC Scale.
7. Set both channels to 50 mv per division.
8. Set sweep to 20 ms per division.
9. Differently ADD both channels.
10. Set trigger to the Auto Mode.
11. Adjust the sweep for center of the display.
12. Make sure the drive cables are properly connected.
13. Turn the system power on.
14. Load Amiga Align - Refer to Section One.

AMIGA ALIGN OPERATION AND TEST PROCEDURES

SECTION FIVE --- DRIVE ALIGNMENT (Continued)

When (A) Alignment is selected from the Test Mode Options, the Read /Write Heads will step to Track 40, (Alignment Track). A SINGLE CAT EYE should be displayed on the scope at this time.

If the ACTUAL PEAK AMPLITUDE of the CAT EYE is not higher than 200 mv p-p, Drive Alignment is necessary.

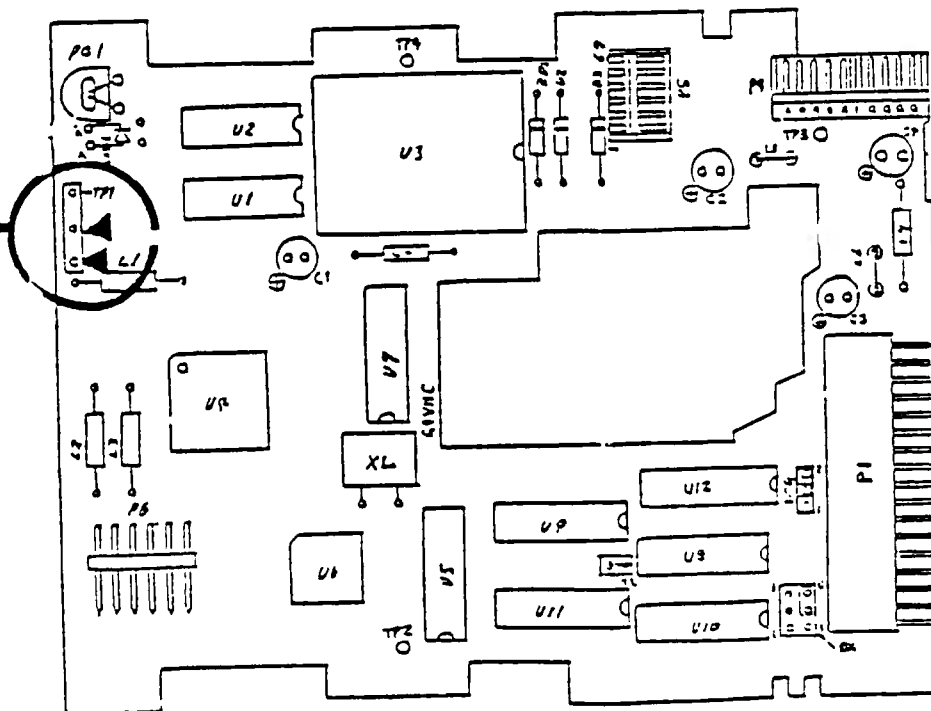
- A. Loosen the Stepper Mounting Screws and turn the Stepper Motor until the MAXIMUM PEAK AMPLITUDE is reached. This is the point where the drive is in proper alignment.
- B. Tighten the Stepper Motor Mounting Screws. The CAT EYE must keep a Peak Amplitude of 200 mv Minimum after the Stepper Motor is tightened.
- C. Pressing the '+' and '-' keys during the Alignment Test will skew the heads, (IN or OUT), checking Hysterias. After Hysterias, the CAT EYE must keep a Peak Amplitude of 200 mv Minimum.

ALIGNMENT NOTES:

1. If the Peak Amplitude does not reach the 200 mv Minimum after the Heads are stepped to Track 40 or cannot be adjusted to this level, Defective Read/Write heads are indicated and Drive Assembly replacement is required.
2. If the CAT EYE displays excessive noise or is not rounded evenly on the top and bottom lobe, Noisy Read/Write Heads are indicated. A drive which displays this type of symptom may operate and not display any read or write errors unless heavily protected software is used. in this case Drive Assembly replacement is required.

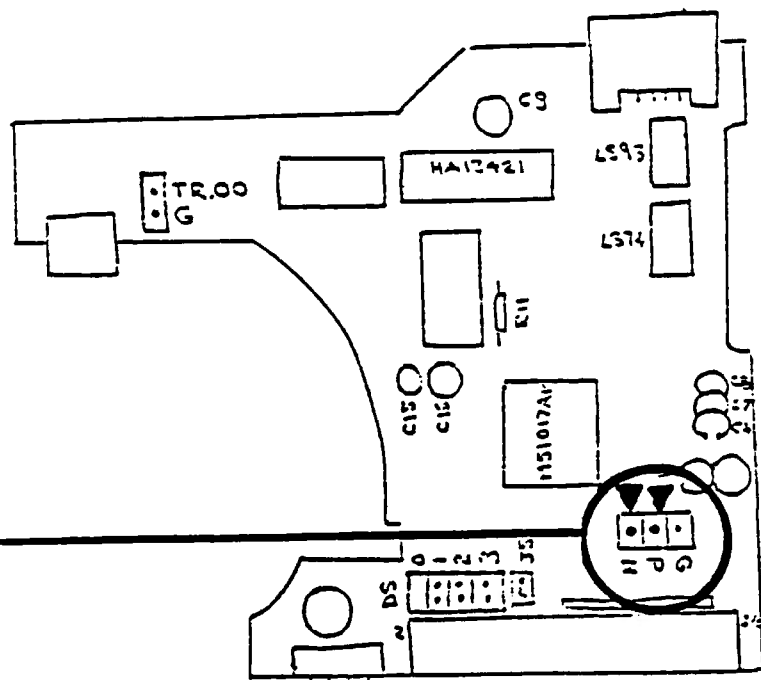
NEC
(FD1035-008)

ALIGNMENT TEST POINTS
USE - TP1, 2ND AND 3RD LEADS



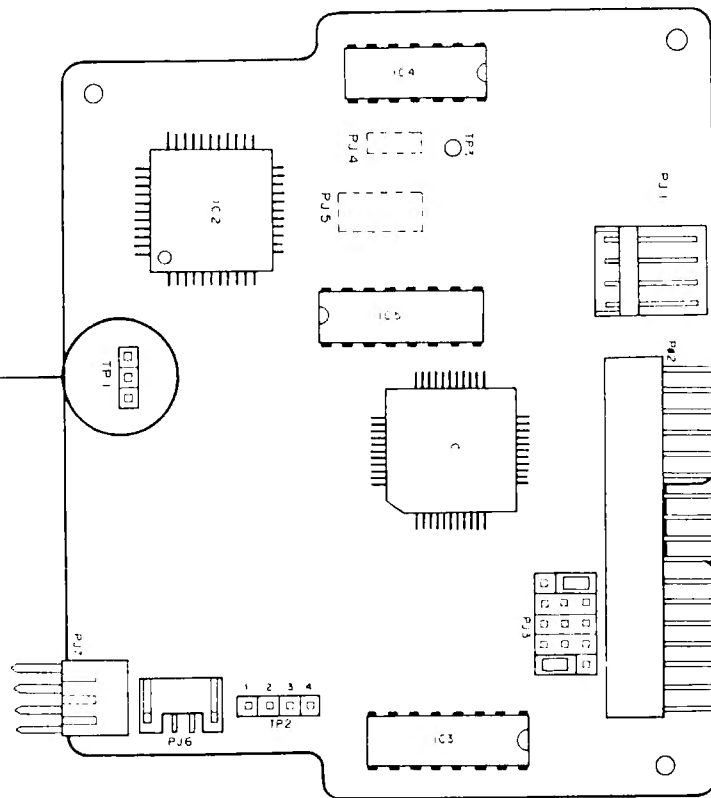
NEWTRONICS
(MITSUMI D357)

ALIGNMENT TEST POINTS
USE - N AND P



CHINON
(F - 354E)

ALIGNMENT TEST POINTS
USE - TP1, 1ST AND 3RD PINS



PANASONIC
(MATSUSHITA JU363 - 03)

ALIGNMENT TEST POINTS
USE - T 1 AND T 2

